

DAC | Headphone Amp | DSD 64/128

# MUSIK DS5

## Owner's manual



**AMI International, Inc.**

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# AMI MUSIK DS5

- \* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!
- \* The WEEE marking applies only in European Union's member states.

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## Safety notification

To reduce the risk of electrical shocks, fire, and related hazards:

- We recommend to not removing screws, cover, or aluminum case. Refer servicing to qualified service personnel.
- Do not expose this device to rain, moisture or spillover of liquid of any kind.
- Should any form of liquid or a foreign object enter the device, do not use it. Switch off the device and then unplug it from the power source. Do not operate the device again until the foreign object is removed or the liquid has completely dried and its residues fully cleaned up. If in doubt, please consult the manufacturer.
- Do not handle the power cables with wet hands!
- Make sure the device is switched off when plugging/unplugging it to/from the power source.
- If anything goes wrong, turn off the device first and then unplug the power. Do not attempt to repair the device yourself: consult authorized service personnel or your dealer.
- Do not install near any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.

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- Do not use harsh chemicals to clean your Unit. Clean only with specialized cleaners for electronics equipment.
  - The AMI MUSIK DS5 comes with surge protection and voltage protection function against external electrical shock or overvoltage input. The AMI MUSIK DS5 will be automatically stopped to protect the product and avoid internal circuit damage. This is a normal behavior of the AMI MUSIK DS5.

## 1. Package Contents

Please make sure you have all of the following contents:

- (1) AMI MUSIK DS5 x 1
- (2) 5V 3A AC-DC Adaptor x 1
- (3) USB A male - USB B male cable x 1
- (4) Bump on x 4
- (5) Quick start guide x 1
- (6) Driver Installation CD-ROM x 1

*Other connecting cables are not included.*

## 2. System requirement

### (1) Operating system

- WDM Kernel Streaming, WASAPI, Direct Sound Dedicated drivers for:
  - ✓ Microsoft Windows® XP incl. SP3
  - ✓ Microsoft Windows® Vista (32/64bit incl. SP2)
  - ✓ Microsoft Windows® 7 (32/64bit)
  - ✓ Microsoft Windows® 8 (32/64bit)
  - ✓ No driver needed for Apple Mac OS X (10.6 or later)
  - ✓ No driver needed for Linux with UAC2 compliant kernel (2.6.37 or later)

### (2) Suggested system requirement

- Genuine Intel® Pentium® IV 2GHz, AMD® equivalent processor or faster (Microsoft Windows XP)
- Genuine Intel® Pentium® IV 2.4GHz, AMD® equivalent processor or faster (Microsoft Windows Vista / Windows 7 & 8)
- Intel, AMD or 100% compatible motherboard chipset
- 1GB RAM (Windows XP) / 2GB RAM (Windows Vista / Windows 7 & 8)
- 10GB of free hard disk space
- USB type A female USB 2.0 hi-speed port

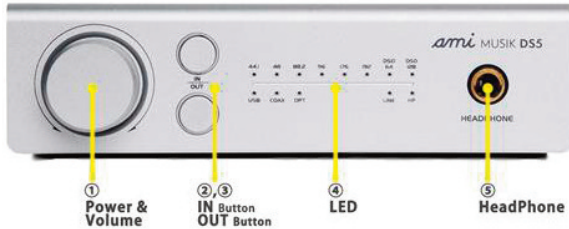
## 3. Product features & Components

- DSD DAC and headphone amp supporting 2.8MHz (DSD64)/5.6MHz (DSD128)
- Standalone DAC support (with coaxial and optical input)
- Asynchronous USB operation: bit-perfect digital audio and low clock jitter.
- USB audio class 2 (up to 24bit/192kHz) and high-speed asynchronous mode: Microsoft Windows® XP, Windows® Vista and Windows® 7 (32bit/64bit) with special driver compatible with WDM/Direct X, ASIO 2.1 and WASAPI exclusive. Apple OSX version 10.6.4 and above & Linux Kernel 2.6.37 and above (no driver install required).
- Atmel SAM3 Cortex™-M3 microcontroller to support up to 32bit/384kHz, DSD64/DSD128 audio data (support up to 192kHz with CS4398)
- Customized AMANERO Technologies COMBO384 USB 2.0 Audio Class solution supporting PCM 24bit/192kHz and DSD64/DSD128. This solution provides Mute/DSD out enable pin allowing to safely shifting between PCM and DSD.
- AMANERO firmware update manager allows updating possible future firmware via online.
- Cirrus Logic CS4398 (120dB, 192kHz multibit DAC) 120dB dynamic range, advanced segment DAC architecture supporting DSD64/DSD128 format and automatic mute algorithm.
- Wolfson WM8804 S/PDIF transceiver supporting advanced jitter attenuating PLL with low intrinsic period jitter of 50ps RMS providing even best audio playback experience from external signal input.
- TI TPA6130A2 Stereo headphone amplifier for superior PCM and DSD signal playback via headphone (Max 16  $\Omega$  138mW)
- Over voltage protection logic. In case of AMI MUSIK DS5 reaches 5.5V, the protection logic would activate to protect the DAC, and various IC.
- 2 W 1:1 input range, dual unregulated output, 1000 Vdc isolation, DC-DC converter  
High-efficiency analog power supply circuitry for supporting secondary rectification by linear regulator for isolating +/- 12V unregulated power generated from the +5V external power thoroughly blocking external intervention from analog power and providing clean, low energy, low heat DC power
- Dual line output mode support pure DAC mode (fixed gain) and pre-amp mode (variable gain, digital volume control)
- 20PPR mechanical encoders Quadrature 20-step encoder allowing control of on/off power, volume control, DFU mode in/output.
- Fade in/out featured for switching mode and playback for your hearing protection.
- 7T/5T aluminum front/top for anti-vibration

- LED for sample rate, input and output status, volume level and different settings indication.

## 5. Product appearances and functions

### (1) Front panel



#### ① Volume knob & Power button

- On/off power button: Push the volume knob for approximately 1 second for power on/off
- Volume control: Turn the volume knob for controlling the volume (up to 56 levels)
- When turning the volume knob, the LED will instantly show the volume level (approximately 7 levels are represented by 1 LED)
- When in fixed mode, the line out volume is set to "fixed". The volume knob would not control the volume of the line out, but would continue to control the volume of the headphone out.

### AMI MUSIK DS5 supports dual line output mode.

**(1) Preamp mode-Variable mode (default):** Volume control is possible via the volume knob for Line out and Headphone out. The last volume level is remembered when restarting in variable mode.

**(2) DAC mode-Fixed mode:** Line out volume is set to "fixed". The volume knob will not be able to control the line out volume level (except for the headphone out volume level). The volume level will be reset to 20% to protect your ear protection.

#### ※ Fixed/variable mode setting

- 1) Turn off the device by pushing the volume knob
- 2) Push the in/out button simultaneously.
  - 44.1 LED blinking: Fixed mode
  - 48 LED blinking: Variable mode
- 3) Turn on the device by pushing the volume knob.

#### ② Input (default: USB)

- Push button to select input source (USB – Coaxial – Optical)
- ※ The default input is set to USB

#### ③ Output (default: Line)

- Push button to select output source (RCA Line out – Headphone out)
- ※ The default output is set to Headphone out

#### ④ Headphone output

- Push Output button to select headphone out mode
- ※ The line output sound is automatically muted.

#### ⑤ LED

- Sample rate indicator
- Input/output indicator
- Volume indicator
- Different setting indicator (fixed/variable mode, etc. ...)

### (2) Rear panel



⑥ **Line output** : Standard dual RCA stereo line output jack support pure DAC mode (fixed gain) and preamp mode (variable gain).

⑦ **Coaxial input** : Support up to 24bit/192kHz coaxial RCA S/PDIF input (Standalone DAC support)

⑧ **Optical input** : Support up to 24bit/192kHz TOSLINK S/PDIF input (Standalone DAC support)

⑨ **USB input** : Support up to 24bit/192kHz and high-speed asynchronous mode USB input

⑩ **DC input** : DC 5V 3A adaptor input

⑪ **Ground** : Connect ground cable in case you need grounding.

## 6. Driver installation & system setup

*[Notice] Some music players does not support native playback of music files. We would like to recommend you to install music players that support this feature as well as automatic sample rate switching and automatic sample rate detection.*

Please check if your computer support USB 2.0 interface prior to installing AMI MUSIK DS5. Install USB 2.0 supporting PCI card, PCI-e card, or USB card device if it does not support it.

Recommended hardware configuration

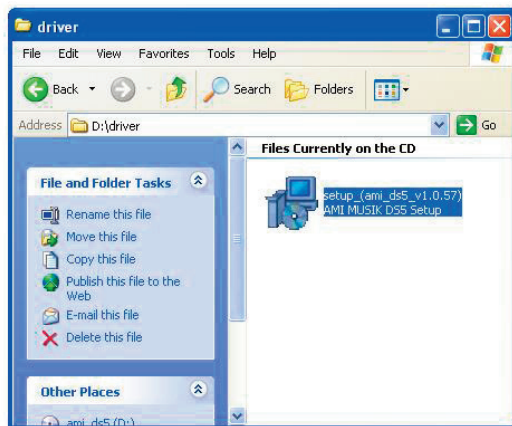
- Intel Pentium 4 i3 and up CPU or same level AMD CPU
- 4G and up RAM
- USB 2.0 port
- Microsoft Windows 7 and up / Mac OS X 10.6.4 and up / Linux Kernel 2.6.37 and up
- 7200rpm UDMA 133 supporting hard disk
- DVD-ROM 16X and up

※ For Windows users, you need to first install the driver and then connect the device with your PC.

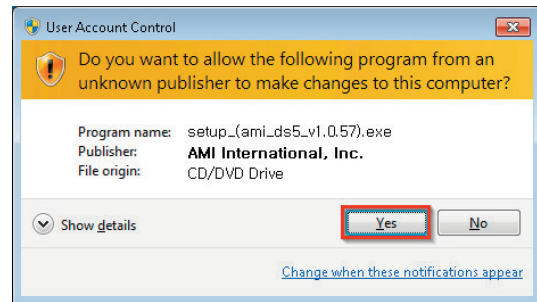
### (1) Microsoft Windows PC (XP, Vista, 7 & 8)

Windows PCs need a driver installation in order to playback music using an asynchronous USB Audio Class 2(UAC2) device. Setup will require that you connect the device with your computer once the driver is installed.

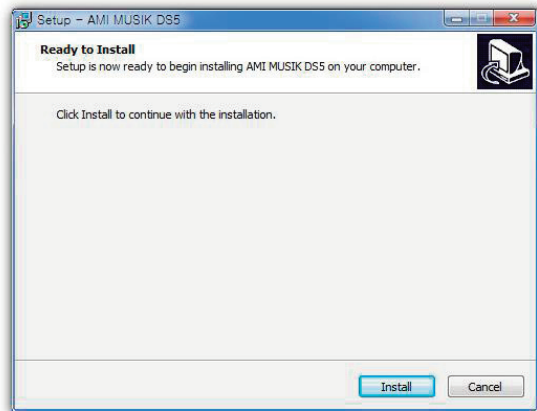
#### 1) Microsoft Windows Vista, 7 & 8 installation



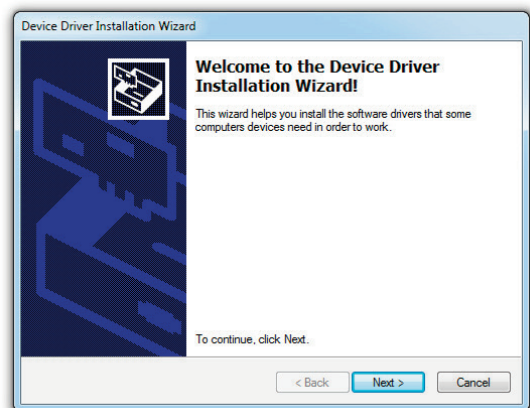
Open the explorer and click on the icon of your CD/DVD drive. Double-click `setup_(ami_ds5_v)AMI MUSIK DS5 Setup`



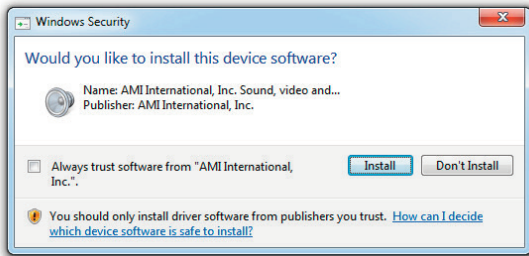
Click on **Yes** to continue



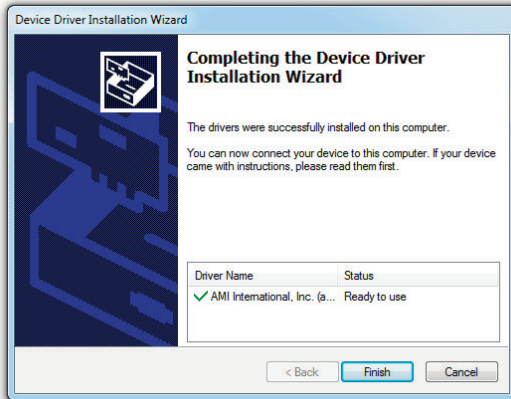
Click on **Install** to continue



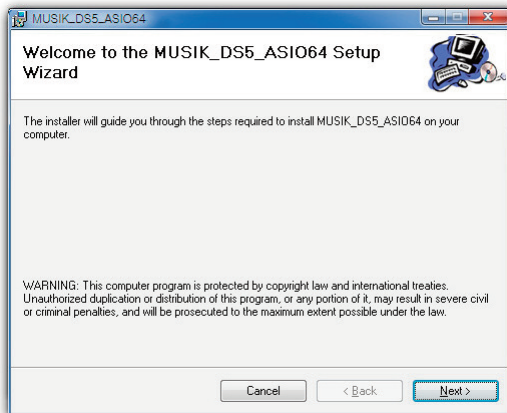
Click on **Next** to continue



Click on **Install** to continue

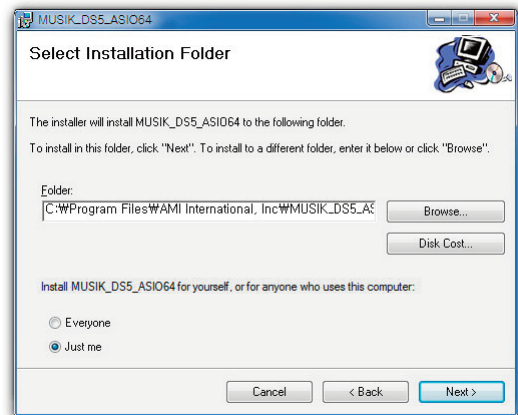


Complete the installation by clicking **Finish**.

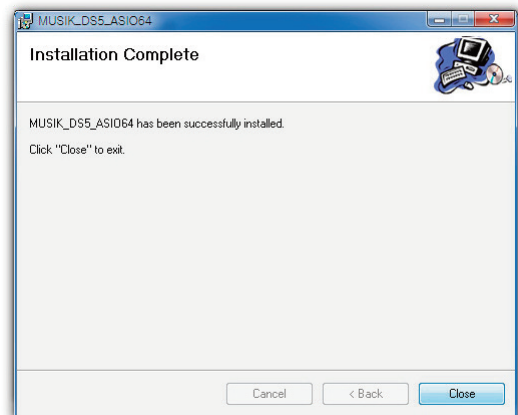


Once the driver is successfully installed, ASIO installation driver will automatically launch.  
Click on **Next** to continue

\*If you do not need the ASIO driver, click on **Cancel** and go to the next step.



Verify the folder or make changes to the folder and click on **Next**

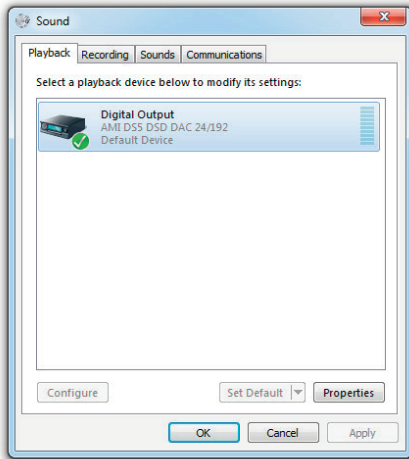


Complete the installation by clicking **Close**  
Connect your device to the computer and power on.

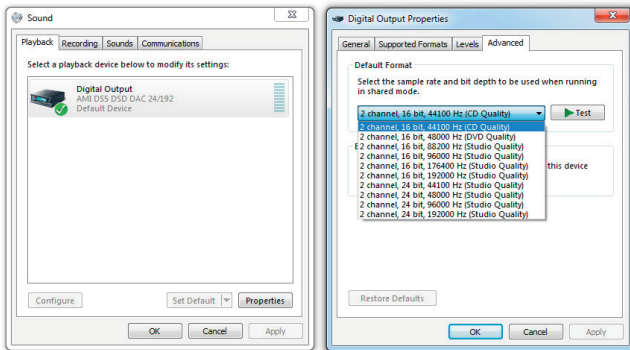
#### ※ **Powering on AMI MUSIK DS5:**

Connect the supplied 5V DC adaptor power supply to the AMI MUSIK DS5 and connect to your PC using the supplied USB cable. Push the volume button for approximately 1 second. The LED indicators at the front panel will illuminate for unit initialization. After initialization, the AMI MUSIK DS5 will be ready for use. The quad level LED indicators shows will first show the current volume setting and then, the current sample rate.

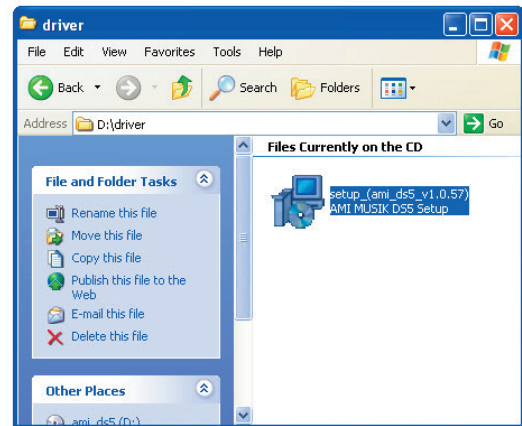
## 2) Microsoft Windows XP installation



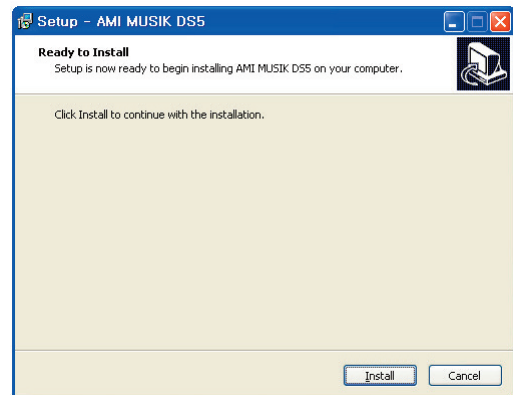
After successful installation of the driver, click on **Start → Control Panel**. Select **AMI DS5 DSD DAC 24/192** as playback device and set it as default by clicking **Set Default**.



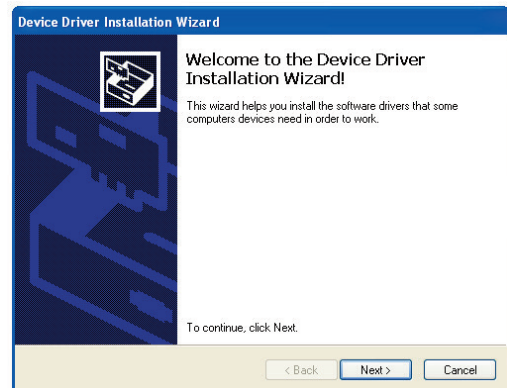
Click **Properties** button and then select **Advanced** tab and you can adjust and test the output format as required.



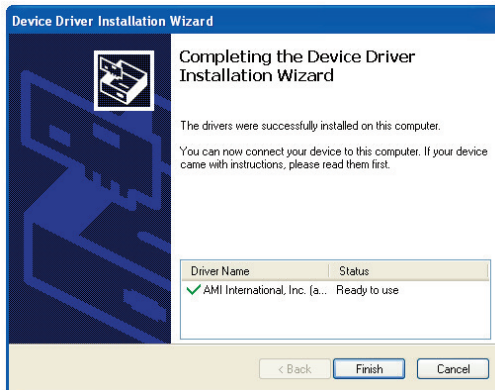
Open the explorer and click on the icon of your CD/DVD drive. Double-click **setup\_(ami\_ds5\_v )AMI MUSIK DSS Setup**.



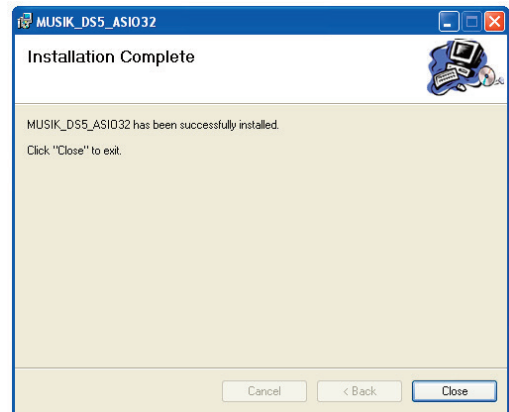
Click on **Install** to continue



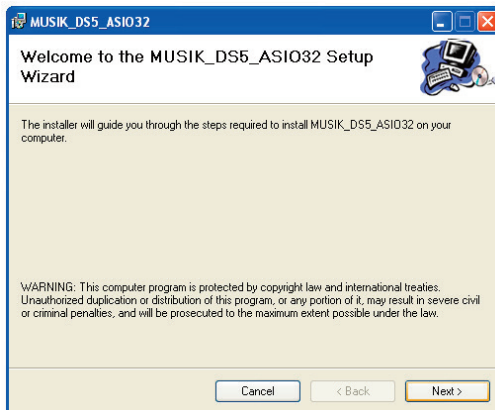
Click on **Next** to continue



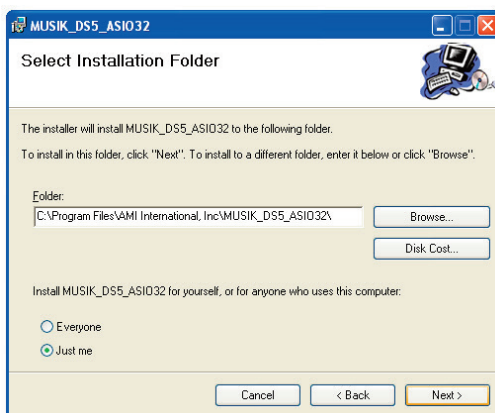
Complete the installation by clicking **Finish**. Connect and proceed to the next installation.



Complete the installation by clicking **Close**  
Your driver installation is now complete.



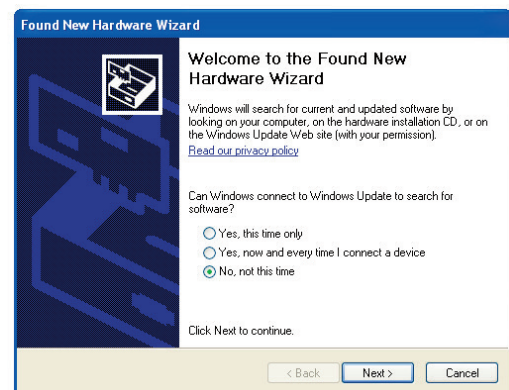
Click on **Next** to continue



Verify the folder or make changes to the folder and click on **Next**

### ※ **Powering on AMI MUSIK DS5:**

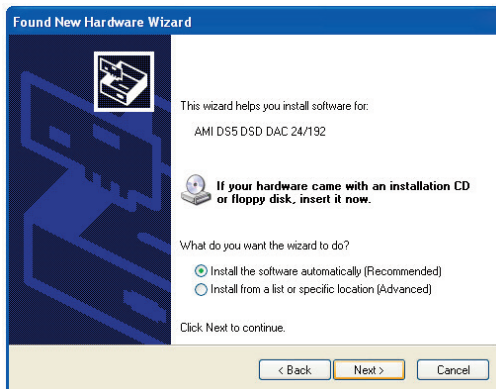
Connect the supplied 5V DC adaptor power supply to the AMI MUSIK DS5 and connect to your PC using the supplied USB cable. Push the volume button for approximately 1 second. The LED indicators at the front panel will illuminate for unit initialization. After initialization, the AMI MUSIK DS5 will be ready for use. The quad level LED indicators shows will first show the current volume setting and then, the current sample rate.



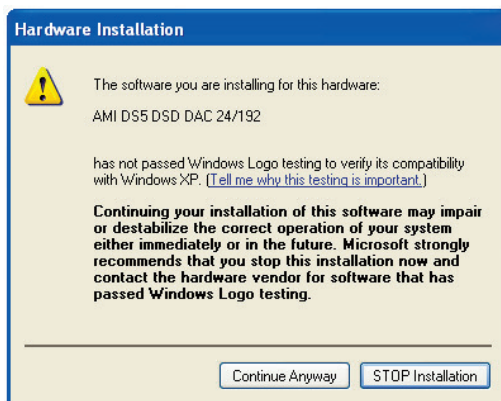
After installation of the driver package, Windows automatically starts

### **Found New Hardware Wizard.**

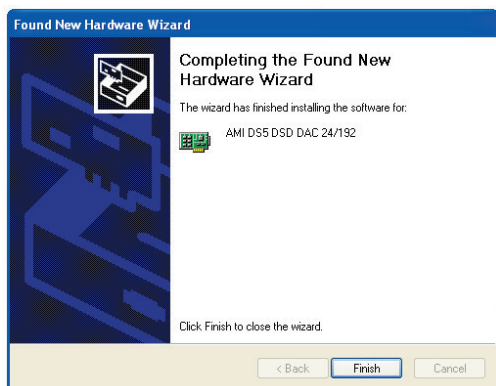
Click on **No, not this time** and Click **Next** to continue.



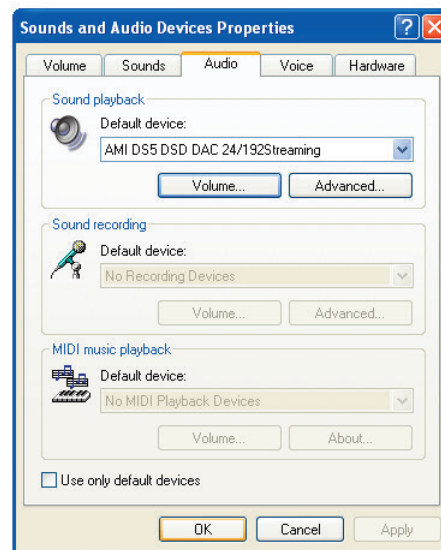
Select **Install the software automatically [Recommended]** and click **Next**



Click on **Continue Anyway**



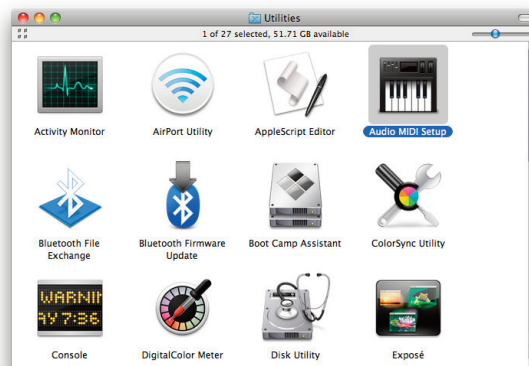
Complete the installation by clicking **Finish**.



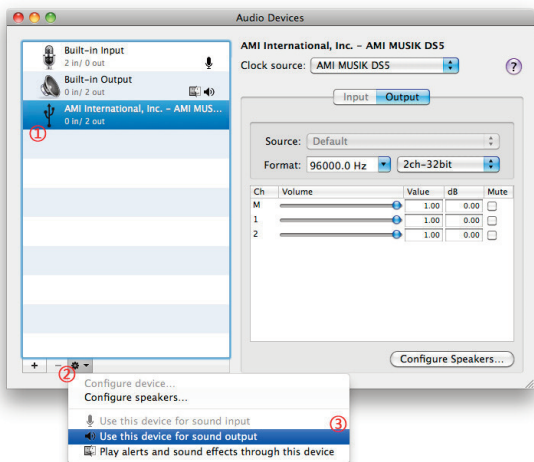
After successful installation of the driver, Click on **Start → Control Panel**. Select **AMI DS5 DSD DAC 24/192** as playback device.

## (2) Apple Mac OSX 10.6.4 or higher, Linux Kernel 2.6.37 or higher

The OS embedded UAC2 driver is installed automatically when the AMI MUSIK DS5 is connected. No third party driver installation is needed. Simply connect your AMI MUSIK DS5 to a free USB port on your Apple Mac or Linux computer using the USB cable supplied.



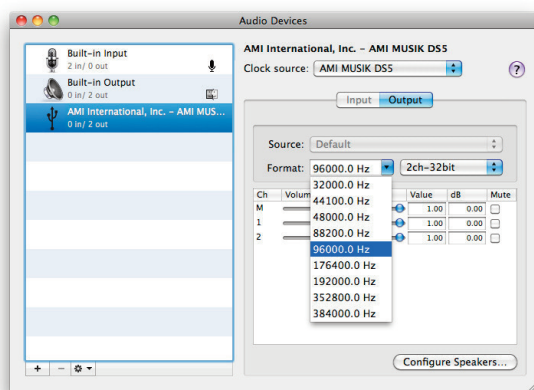
Open Finder > Go to **Utilities > Audio MIDI Setup**



① Select **AMI DS5 DSD DAC 24/192**

② Click on the setting button

③ Click on **'Use this device for sound output'** as playback device and set it as default.



You can select the output format

※ Note: The AMI MUSIK DS5 support up to 192000.0 Hz only.

## Specifications

**Dimensions** • 150 x 40 x 140mm (W x H x D)

### Digital inputs

- USB HS 2.0 (USB Audio CLASS 2.0 / DSD over USB PCM token FA05 / PCM, DSD Native Stream)
- Support PCM 24bit/192kHz
- Support DSD 64 (2.8MHz) / DSD 128 (5.6MHz)
- Optical x 1EA (50Mbps/192kHz max / WM8804)
- Coaxial x 1EA (75Ω/192kHz max / WM8804)

### Analog outputs

- D/A converter: Cirrus Logic CS4398 (120dB, 192kHz multibit DAC)
- Dynamic range: 120dB A-Weighted (component spec)
- Signal noise ratio: 120dB A-Weighted (component spec)
- THD+N: 0.0005% (component spec)
- Supported PCM sampling rates: 44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz
- Supported DSD SCLK frequency: DSD64 (2.8MHz) / DSD128 (5.6MHz)
- Matched PCM / DSD analog level out (2.2Vrms pair)
- 2 RCA x 1EA (2.2Vrms, gold plated RCA output)

### Headphone Output

- 6.3mm phone jack x 1EA (2Vrms max, gold plated 6.3 headphone jack output)
- Supported headphone impedance: 16-300Ω
- Output level: 150mW(16Ω loaded)
- Frequency response 20Hz-48kHz
- THD 0.02%@1kHz

### Power Supply

- Type: 2.1mm DC Jack (external power input)
- Maximum input: 5VDC 3A
- Over voltage protection: 5.5VDC limit (shutdown operation)

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## Customer Support & Warranty

- **Customer Support** <http://amimuse.com/support/support-tickets/>
- **Warranty** <http://amimuse.com/support/warranty/>
- **FAQ** <http://amimuse.com/support/faq/>
- **Manual & Driver updates** <http://amimuse.com/support/downloads/>

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